

APR 06 2015

Application for Mineral Mine Plan Revision or Amendment

Operator: CS Mining, LLC

Mine Name: Hidden Treasure Operations

File Number: M/ 001 /0067

Provide a detailed listing of all changes to the mining and reclamation plan that will be required as a result of this change. Individually list all maps and drawings that are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise or amend the existing Mining and Reclamation Plan. Include page, section and drawing numbers as part of the description.

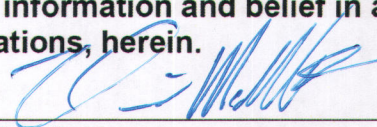
DETAILED SCHEDULE OF CHANGES TO THE MINING AND RECLAMATION PLAN

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	NOI text pages 9, 9a, 10, 10a, 10b, 29, 29a, 42, 44a, 44b, 45, 46, 48a, 48b, 51, 60, 70, 70a, 79, 79a
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Figures 10a, 10b, 10c
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix G Data
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I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments and obligations, herein.

David McMullin

Print Name


 Sign Name, Position

President & CEO

Date

4-3-2015

Return to:

State of Utah
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 Division of Oil, Gas and Mining
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Approved: _____

Bond Adjustment: from (\$)

to \$ _____

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so the dump material and the topsoil stockpile areas will not be comingled. If sufficient growth media is not available, the waste in the pit would be ripped to a depth of two (2) feet and reseeded.

A 7.53-acre ore stockpile area has been established adjacent to the waste rock dump and across the haul road to the southeast (Figures 11a and 11b). Ore, primarily of lower grade, will be stockpiled here and hauled to the mill for blending with higher grade ore. The stockpile has been in use since prior operators mined the Bawana pit. ~~Topsoil was not salvaged from the site and remains largely in place. After the stockpile is no longer needed and all ore is removed, the in-place soils will be ripped to an appropriate depth (approximately 1.5 times the soil thickness or 1 foot, whichever is greater) salvaged from nearby stockpiles will be used to cover the entire stockpile area with 1 foot of topsoil and then reseeded and reclaimed as described in section 110.2.~~

~~All available topsoil within the 22.87-acre expanded dump area, estimated to be 36,900 cubic yards, will be collected and stored in three (3) separate areas identified on Figure 11a was not salvaged and stockpiled as originally planned. This resulted from internal miscommunications within CSM. Instead a total of 13,600 cubic yards were recovered and the salvaged topsoil is now stored beneath a segment of the adjacent haul road. This soil, though salvageable, has lost some of its value as a true topsoil stockpile due to burial and compaction, lack of interim vegetative cover and reduced microbiotic activity. Topsoil recovered from the 10.7-acre pit expansion is estimated to be 17,263, 2,400 cubic yards and will be placed on in a the stockpile nearest the pit expansion located south of newly constructed mine dump the Hidden Treasure topsoil stockpile. The topsoil will be removed to a depth of one (1) foot or more depending on availability assuming that alkaline conditions are not encountered. It is estimated that a total of 54,160 cubic yard will be collected and stockpiled as part of Bawana pit expansion. If additional topsoil materials are available in the area, they will be used in final reclamation for the entire dump, otherwise, only the 22.87 acre expansion will be covered with topsoil and the original dump area will only be ripped and reseeded. Sufficient topsoil is available in the nearby Hidden Treasure stockpile to cover the terraces of the newly expanded Bawana dump as well as the adjacent areas disturbed by previous operators with one foot of soil and reclaimed as described in section 110.2.~~

Sunrise Pit

The ~~proposed~~ Sunrise Pit ~~will be~~ located primarily on patented land owned by CSM with its southern part extending onto BLM land. The pit ~~will encompass~~ an area of 12.46 acres (Figure 13a). Approximately 2.84 million tons of overburden and 577,400 tons of ore are anticipated to be removed from this pit. The depth of the pit ~~will be~~ approximately 380 feet, ~~with overall high walls ranging from 49 degrees on the north, and 53.2 degrees on the west.~~ Ore ~~will be~~ hauled to the mill via a short haul road extending from the north side of the proposed pit northward to the Hidden Treasure haul road near the Bawana pit. The overburden ~~will be~~ placed on the ~~proposed~~ Sunrise waste dump, located east of the ~~proposed~~ Sunrise Pit (Figure 13a). The Sunrise waste dump ~~will be~~ located on a mixture of patented and unpatented land owned and/or controlled by CSM, ~~will have and has~~ a footprint of 41.23 acres and a height of approximately 150 feet (Figure ~~31a~~ 13a). The waste dump ~~will be designed and has been constructed in a series of terraces with intervening angle-of-repose slopes. The terraces have a minimum width of 25 feet between alternating dump slopes, and each bench has a maximum vertical height of 60 feet. The Sunrise dump consists of four terraces, and a maximum vertical height of 5390 ft amsl, constructed to achieve a 3h:1v outslope. As of February 21, 2015 the Sunrise Pit as designed has been mined to completion. Until further exploration verification, the Sunrise Pit is considered closed by~~

CSM. A closure geotechnical report has been initiated by IGES. Upon completion of the report, a copy of the findings will be provided to the Division.

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All available topsoil within the proposed disturbed areas will be collected and stored in three stockpiles located as shown on Figure 13a. Topsoil from the Sunrise pit and waste dump footprints has been calculated to be 45,700 (Table 6). and waste dump footprints is had been estimated to be 159,600 96,600 cubic yards (Table 6); however, the quantity recovered in 2014 was 45,700 cubic yards. A modest amount of additional topsoil may be recovered as the currently permitted Sunrise pit is completed, and will be removed to a depth of Up to one (1) foot of topsoil was recovered for salvage where possible, or more depending on availability and assuming that alkaline conditions are not encountered.

The Sunrise disturbances will be reclaimed in accordance with the Division's standards (Figure 13b). Because the waste rock dump will be constructed terraced with intervening angle-of-repose slopes at the final outslope angle, regrading will not be necessary. The dump top surface and the terrace surfaces will be covered with Ttopsoil and reclaimed as described in section 110.2. will be reapplied at a thickness of approximately one foot, ripped and reseeded to all disturbed areas except the open pit itself.

Maria Pit Expansion

The existing Maria pit, which was mined in the past prior to implementation of Utah's mining regulatory program, will be expanded in all directions. New disturbance resulting from the pit expansion is estimated to be 29.35 acres (Figure 106a). This expansion will result in the mining of relatively shallow, flotation-amenable ore. Deeper ore in what is known as the Candy B deposit is located to the south of the existing pit and will be mined in the future and as part of this initial expansion. The current pit has a depth of approximately 100 feet. The proposed expansion will result in a final pit depth of to up to 270400 feet, which will yield an additional 650,000 tons of ore and 6.5 million tons of waste. According to exploration drilling within and near the Maria Pit, no water is anticipated to be intercepted at a depth of 270 feet below current elevation. If in the future CSM proposes to increase the depth of the Maria Pit, an amendment to this plan will be submitted, which will include a more detailed analysis of ground water characteristics. The existing haul road is adjacent to the pit and this road will be used both to deliver ore to the mill and to haul orewaste to the Hidden Treasure dump. The short access roads to and from the haul road will lie within previously disturbed areas adjacent to the pit and largely within the previously approved Hidden Treasure dump disturbance area. The proposed location of the short access road from the haul road to the Hidden Treasure dump is shown on Figure 16a. Waste rock will be plug-dumped on the margins of the proposed dump footprint and will become part of the Hidden Treasure dump as designed (Figure 10a).

Niagara Hill Pit

The proposed Niagara Hill Pit will be located entirely on patented land owned by CSM. The pit is currently planned to encompass an area of ??????38.41 acres (Figure 11d) when it is completed. Up to ???10 million tons of overburden and ???1.25 million tons of ore are anticipated to ultimately be removed from this pit. The depth of the pit will range from 200 to 600 feet as measured from the south and north highwalls, respectively. The Niagara Hill Pit is

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planned to be built in phases, with the first phase only encompassing a footprint of approximately 10 acres, with a total pit depth of less than 100 feet, and designed with 45 degree pit slope. This pit will be located along the eastern extent of the large Niagara Pit footprint. Access to the small pit will be along an existing exploration road located east of the Bawana pit.

Ore will be hauled to the mill via a new haul road extending from the western pit margin to the Hidden Treasure haul road (Figure 11d). Waste rock from the Niagara Hill pit will be first placed in the Bawana pit and then in a new terraced dump located above and to the east and south of the Bawana pit as an eastward extension of the current Bawana dump. The Niagara dump will be built in a series of terraces with intervening angle-of-repose slopes. The terraces will have a minimum width of 50 feet between alternating dump slopes, and each bench will have a maximum vertical height of 70 feet. The Niagara dump, upon completion of waste placement, will have four terraces, and a maximum vertical height of 5550 ft amsl. The final dump will consist of a broad level top surface with up to 3 terraces on the east and south margins. Terraces will have intervening slopes at angle of repose. Reclamation will consist of topsoiling and reseeding the top and terrace surfaces as described in section 110.2

West OK Stockpile

Ore from the West OK stockpile will be loaded into 60 to 100-ton trucks using 12 to 13.5-cubic-yard front-end loaders, and trucked about one-quarter of a mile south to the mill facility. Because this is an existing ore stockpile, there will be no waste rock associated with this part of the operation. The portion of the stockpile that will be processed covers an area of 4.9 acres; the proposed operation will result in elimination of this portion of the stockpile after removing approximately 500,000 tons of ore. ~~Topsoil remaining beneath the stockpile will be allowed to remain in place. This topsoil will be ripped to an appropriate depth (approximately 1.5 times the soil thickness or 1 foot, whichever is greater) and then reseeded.~~

Previous Disturbances for Which CSM is Not Responsible

Mining-related disturbances for which CSM is not responsible are shown and labeled on Figure 1. Those disturbances are also listed below beginning with disturbances in the vicinity of the mill and then southwesterly toward to southern end of the Rocky Range:

- OK Mine Pit and Dump and related disturbances
- Unnamed disturbances south of the flotation tailings pond
- Hidden Treasure pit area older disturbances
- ~~Maria pit, dump, and related disturbances~~
- Bawana and Montreal older disturbances
- Old Hickory disturbances.

However, CSM will voluntarily reclaim the previous disturbance areas adjacent to the Hidden Treasure and Bawana disturbances that are north of the haul road. These areas are shown on Figures 10b and 16b?? and are generally located west and south of the current Hidden

Treasure pit, and south and east of the proposed ~~Bawana dump~~ Maria expansion area. This planned reclamation activity is described in section 110.2. This reclamation work will not be carried out until CSM determines through condemnation drilling or other means that no potentially economic mineralization occurs at depth beneath these previously disturbed areas.

Mining and Reclamation Methods and Equipment

~~Waste rock dump slopes will be built to a slope of 3h:1v using a D-8 and D-10 Caterpillar, a Cat 385 track hoe, and Cat 773D haul trucks. The dump will be ripped to a depth of two (2) feet and available topsoil will be distributed for reseeding. Details on reclamation are provided in Section 110 below.~~

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designated in the table. The materials sampled are categorized as overburden (OB), which is cemented alluvium, OZ for ore zone, WR for wall rock, WT for waste rock, and PB for pit bottom. In terms of this material classification wall rock and waste rock are the same material types with the difference being that the wall rock remains in the pit and the waste rock is removed.

Analysis of AGP and ANP for the Sunrise deposit indicated very high ANP with AGP almost nil. (Note that AGP is expressed as Maximum Potential Acidity (MPA), which is virtually equivalent to AGP. The net neutralizing potential for all material types, including the ore zone samples, is very high, which indicates that acid waters capable of leaching metals from the sulfide-containing material (ore zone samples) will not develop. The mineralogy of the country rock provides no source of leachable metal or metalloids that may become deleterious and deleterious leachate is neither anticipated nor likely to occur. Accordingly, other tests for leachable metals and metalloids such as MWMP and SPLP ~~are~~ were deemed neither necessary nor appropriate.

The Maria orebody is located in granitic and limestone/silicate skarn country rock, similar to what is found in the Bawana pit. The overall percentage of oxide ores within the Maria orebody ranged from 45-100 percent, depending upon location within the ore zone. There are three main occurrences of mineralization recognized within the proposed Maria pit limits.

1. Epidote Skarn:

a. Epidote, grossular (garnet), manganese oxide, and occasional serpentine. Additionally, goethite, malachite, and chalcopryrite are encountered in minor amounts.

2. Andradite Skarn:

a. Andradite (garnet) and silicate matrix with chalcopryrite in higher grade zones.

3. Magnetite Skarn:

a. Magnetite, hematite, goethite. Chalcopryrite, occasional bornite and chrysocolla

AGP/ANP analyses for the proposed Maria expansion were compiled from eight different exploration drill holes located throughout the Maria orebody. The pulps from the exploration drill holes were split into two classifications for analytical purposes: waste and ore, with each classification representing the different types of zones anticipated to be encountered during mining. (Note that AGP is expressed as MPA, as was performed for the Sunrise analyses). Average AGP/ANP results for each zone is included in Table 2.1 below:

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Table 2.1 Acid Generating and Neutralization Potential – Maria Deposit

<u>SAMPLE</u>	<u>Recvd</u> <u>Wt.</u>	<u>MPA</u>	<u>NP</u>	<u>pH</u>	<u>Ratio</u> <u>(NP:MPA)</u>
<u>DESCRIPTION</u>	<u>kg</u>	<u>tCaCO3/1Kt</u>	<u>tCaCO3/1Kt</u>	<u>Unity</u>	<u>Unity</u>
<u>Maria-Waste</u>	<u>0.11</u>	<u>0.3</u>	<u>64</u>	<u>8.5</u>	<u>204.8</u>
<u>Maria-Ore</u>	<u>0.2</u>	<u>9.4</u>	<u>124</u>	<u>8.5</u>	<u>13.23</u>

Results provided by ALS Minerals Report RE15039764

The AGP/ANP data for the Maria deposit demonstrate that the waste rock and ore zones in the proposed pit will be non-acid-generating, and will have neutralizing potential. Acid rock drainage is therefore not anticipated in either the waste rock dump or the pit.

Based upon mineralogical and metallurgical analyses of the two ore zones that make up the Niagara orebody, the Niagara deposit appears similar to that of the Hidden Treasure and Bawana, both of which exhibit low AGP and high ANP, due to the presence of limestone host material. This will be confirmed through analyses of acid-base accounting prior to commencement of mining.

NOTE: Development of a sampling and analysis plan for waste rock, wall rock, ore, and pit bottom rocks for the Niagara and Maria deposits is currently in process by CSM. That plan will be reviewed with Division staff prior to implementation. The results of this sampling and analysis will then be described in the text **HERE** and in a data summary table to be added as part of the **June 1** NOI Amendment.

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TABLE 6 Top Soil Quantities and Locations (continued)

HIDDEN TREASURE MINE AND SITLA ORE TRANSFER AREA			
88,653 Cu. Yds.* <u>105,000</u>	N W/14 NW/14, SEC. 22, TWP. 27 S. R. 11 W.	The topsoil was collected from the Hidden Treasure pit extension and the footprint of the Hidden Treasure dump area and stored between the Hidden Treasure pit and dump area.	#10a
17,334 Cu. Yds	SE1/4 of Sec. 16, TWP. 27 S., R. 11 W. (S.I.T.L.A. Parcel)	The topsoil was collected and placed on the easterly boundary of the 6.06 acre parcel identified as an Ore Transfer Station on State Trust Lands. Additional amounts totaling 11,712 cu. yds were collected from the Hidden Treasure dump expansion and added to the existing 5622 cu. yds. previously collected from the SITLA parcel.	#10a
<u>57,870</u> Cu. Yds	<u>SE1/4 of Sec. 16, TWP. 27 S., R. 11 W. (S.I.T.L.A. Parcel)</u>	<u>The calculated amount of topsoil to be salvaged by expanding the currently permitted 72.2 acre Hidden Treasure waste dump an additional 35.87 acres. It is assumed that topsoil salvage depth will be approximately one foot.</u>	<u>#10a</u>
405,987 <u>163,857</u> Cu. Yds.	Total from the Hidden Treasure and SITLA area.		

* volume revised based on 2014 survey results

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Top Soil Quantities and Locations (Continued)

<u>MARIA PIT & RELATED DISTURBANCE</u>			
<u>Estimated Cu. Yds.</u>	-	-	-
<u>Future Operations</u>	<u>Location</u>	<u>Notes</u>	<u>Map Figure</u>
<u>115,400 *</u>	<u>Maria Pit and Related Disturbance Area; topsoil will be placed on the topsoil stockpile located east of the SITLA ore transfer station.</u>	<u>The new disturbance area surrounding the existing Maria pit is approximately 10.6 acres. No more than an average of 3 inches of soil is estimated to be recoverable from this area; the estimated soil volume at left may be an overestimate of the recoverable volume.</u>	<u>#16a</u>
<u>Total Estimated Cubic Yards for the Sunrise areas.</u>			

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Top Soil Quantities and Locations (continued)

<u>NIAGARA HILL PIT, WASTE DUMP, & HAUL ROAD</u>			
Estimated Cu. Yds.			
Future Operations			
16,600	Niagara Hill Pit	The Niagara Hill pit is planned to disturb up to nearly 40 acres; however, the steep terrain has resulted in little soil development. In all but 5 percent of the area, topsoil thickness is no more than 3 inches.	#11d
26,100	Niagara Hill Waste Dump	Much of the Niagara Hill waste dump site is previously disturbed in part and the average topsoil thickness for the 61.5-acre area is under 3 inches.	#11d
5,800	Niagara Hill Haul Road	Total disturbance related to the haul roads is estimated to be just over 14 acres. Topsoil salvaged from the haul road is stored in the pit stockpile.	#13a
48,500	Total Estimated Cubic Yards for the Niagara Hill areas.		

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106.6 Plan for Protecting and Re-Depositing Existing Soils

The available topsoil will be recovered primarily by loader (CAT 990) and haul trucks (CAT 773D). CAT 631 scrapers may also be used, especially for salvaging of topsoil. These soils have been or will be stockpiled either near the Hidden Treasure, Bawana, and Sunrise pits, ~~or~~ near the OK mine, greater plant area, and ITDF. Topsoil salvaged from the Niagara pit and related disturbances will be stockpiled in the vicinity of the Bawana historic dump disturbances on the north Sunrise topsoil stockpile, located east of the newly constructed Sunrise haul road, or on the topsoil stockpile located east of the SITLA ore transfer station. Topsoil salvaged from the Maria Pit expansion and Hidden Treasure Dump expansion will also be stockpiled on the topsoil stockpile located east of the SITLA ore transfer station. The piles will be temporarily seeded with an interim vegetation seed mix listed below, to protect them from wind erosion. Each pile will be surrounded by a small earthen berm to prevent runoff and to contain eroded materials.

Interim Seed Mix*Species:**Pure Live Seed (lbs/acre):*

hycrest crested wheatgrass	_____ 1
Russian wild rye	_____ 4
Thickspike wheatgrass	_____ 3
Forage kochia	_____ 1
Yellow Sweet Clover	_____ 0.5

During reclamation, soils will be placed on the tailings repository sites (12-inch depth for ITDF; 6-inch depth for flotation tailings pond), the Hidden Treasure dump, the Bawana dump, the Sunrise dump, dump tops, terraces, and access roads (6-inch depth), the footprint of the West OK stockpile (6-inch depth), the greater plant area (6-inch depth), portions of the haul roads widened for this project (6-inch depth) (the pre-mining average 32-foot wide road width would remain un-reclaimed and in use), and the SITLA stockpile area as described in more detail in Section VII.

Topsoil stockpiles will consist of loose growth medium suitable for interim seed mix planting. Planting of interim seed will occur in the fall of each year. All topsoil stockpiles will be monitored for weed growth. If weeds are established, they will be treated by a certified contractor using commercial herbicides. The Contractor's certification will be submitted to BLM prior to spraying. Herbicide will be applied regularly until the piles are contoured to at least a 2h:1v slope, ripped to a depth of 2 feet and reseeded with the interim seed mix. Ongoing monthly inspections of the soil stockpiles will be made throughout the duration of the mining operations to monitor undesirable weed growth and noxious weeds. Any weeds will be sprayed by a certified contractor appropriate with commercial herbicides as necessary.

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Revegetation of the pits and pit safety berms will be achieved within practical limits, except where access is not available. The access ramps and pit bottoms would be ripped to a depth of 2-foot and reseeded. If sufficient topsoil beyond that required for reclamation of waste dumps and other disturbances outside of the open pits is available, it would be used to cover portions of the pit areas.

106.7 Existing Vegetative Cover Communities to Establish Revegetation Success

The BLM (2002), in an EA for the original project at Hidden Treasure, classified the range site near the Hidden Treasure area in parts of Sections 20, 21, and 22 as Semi desert Loam (#451) and Semi desert Gravelly Loam (#453). They noted that the existing natural vegetation in this area was predominantly Wyoming Big Sagebrush, Indian ricegrass, and galleta (curlygrass).

Line-transect surveys completed for the 1996 LMO for the OK Mine by Centurion Mines Corporation showed vegetation cover of 21%, litter 15%, rock/rock fragments 12%, and bare ground 52%. The predominant perennial species of vegetation were listed as big sagebrush, rabbitbrush, squirreltail grass, and Indian ricegrass.

Under R647-4-106 (7), the operations plan must provide a description of existing vegetative communities and cover levels, sufficient to establish revegetation success standards at 70% of pre-mining vegetative cover. Because much of the area to be disturbed has been previously disturbed, or occurs on steep rocky slopes, there are significant areas that are devoid of vegetation or dominated by invader species. The top of the Hidden Treasure dump surface has revegetated itself over the years, with a sparse (but not unlike surrounding cover patterns) cover of rabbitbrush, grass, and forbs. The Niagara Hill area has natural slopes of upwards 50 degrees, and is dominated by large outcrops of volcanic rock. Soil characteristics are similar to Semi desert Gravelly Loam (#453), although no soil characterization has been performed. Although the area supports sparse amounts of sagebrush, rabbitbrush, and grass, soil depths encountered during road building activities related to exploration have ranged from 0-3 inches.

CSM has completed a Biological survey for the entire Project Area. The survey has been approved by the Bureau of Land Management's Cedar City office. The report will support BLM's Environmental Assessment of the Sunrise project and selected road improvements. A copy of the report is provided in Appendix K.

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angle holes; the remainder were vertical holes. Water returns during air-lifting ranged from 2 to 25 gpm and returns ceased after relatively short periods of time. Three cross sections through the Sunrise deposit are shown on Figures 12g, 12h, and 12i. Figure 12f shows the location of development drill holes and the lines of the three cross sections. The cross sections show drill holes, the outline of the designed open pit and water occurrences. The cross sections show that the water occurrences are discontinuous, though sometimes intercepted by more than one drill hole. Air lifting resulted in water return flow rates of from 5 to 25 gpm. All of the noted water intercepts occur at elevations (AMSL) between 4,900 and 5,000 feet. The water occurrences in the northern part of the proposed pit (Section A-A', Figure 12g) occur 100 feet or more below the planned bottom of the pit. Near the deepest part of the pit, the uppermost ground water intercept occurs outside the pit margin at an elevation approximately 30 feet higher than the pit bottom (Section B-B', Figure 12h). The other intercepts shown on that cross section occur approximately 100 feet below the elevation of the pit bottom. Similarly, the single water intercept in the southern part of the pit occurs well outside the planned pit limits and more than 100 feet below the bottom of the pit. The water intercepts all occurred in either limestone or quartzite outside of the ore zone and adjacent metasomatized rocks, according to CSM geological staff (2013).

The above-described drill-hole water intercepts and CSM's past open pit mining experience indicates that water in the vicinity of the Sunrise deposit is perched or compartmentalized. Should water be encountered during the Sunrise pit development and operation or in ongoing mining at the Bawana and Hidden Treasure pits, it is not expected to affect pit wall stability or interrupt mining. The occurrence of these isolated ground water occurrences at variable depths and elevations suggests that infiltration to a deeper aquifer is not taking place through this complex mineralized and altered bedrock.

Ten 600-foot rotary holes were drilled for condemnation purposes within the footprint of the Sunrise waste rock dump to be located immediately southeast of the Sunrise pit. Nine holes encountered water at depths ranging from approximately 300 to 450 feet. One hole encountered no water. Flow rates measured by increases in drilling circulation rates in 9 of the holes ranged from 15 to 250 gpm. According to CSM geological staff (2013), the holes penetrated alluvium underlain by quartz monzonite and the water was encountered primarily in the fractured quartz monzonite. There is no apparent hydrogeologic connection between the water encountered in the Sunrise deposit drill holes and the water encountered to the southeast in the vicinity of the future waste rock dump.

The expanded Maria pit will reach a depth of approximately 400 feet, or an elevation of 4960 feet amsl. Sixteen Exploration drill holes completed in the area of the pit expansion encountered ground water at depths ranging from approximately 245 to 420 feet below elevation 5230 feet amsl. Although the Maria Pit expansion will have a depth of 270 feet, which is 25 feet below the highest elevation in which water was encountered, the water quantity for those holes, at that depth, only showed 1 gallon per minute. Exploration holes that encountered

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water production of 100 gpm, or so at depths of 4917 feet amsl, which would be 43 feet below the deepest proposed pit floor for the Maria Expansion. ~~It is expected that water may accumulate in the pit as it deepened. Water accumulated in the pit will be recovered by in-pit pumps and stored in a stand tank for use in road watering. The country rock in the pit is granodiorite/quartz monzonite; the same general rock type that contains the aquifer that is tapped by the water supply wells (WW-3 and WW-6) currently in use by CSM. Therefore, any minute amounts of water that may be encountered is anticipated to have water quality that is similar to that in the water supply wells (Table 7). A change in point of diversion for one of the water rights currently held by CSM will be obtained from the State Engineer prior to use of the water. If any water of significant volume is encountered during mining activities in the Maria Pit, further analyses will be performed for water quality and quantity at that time.~~

The Niagara Hill deposit is located north of the Bawana pit at an elevation several hundred feet higher near the highest elevation hills in this part of the Rocky Range. More than 25 rotary drill holes were drilled to delineate the Niagara Hill deposit in fall 2014. None of these holes encountered ground water.

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The 1996 LMO associated with the OK operations indicated that overburden thickness ranged from 0 to 300 feet. At the Hidden Treasure, Bawana, and Sunrise pits, overburden thickness will range from 15 to 40 ft, 0 to 45 ft, and 0 to 75 ft, respectively. Details on overburden/waste rock dump placement and construction are provided above in section 106.2

Geologic Setting

The Rocky Range is composed of altered and mineralized sedimentary rocks in the south end, and igneous rocks in its northern end. The Hidden Treasure, [Maria, Niagara Hill](#), Bawana, and Sunrise ore bodies are located in the southern part of the Rocky Range where bedrock consists of Tertiary quartz monzonite and Permian carbonate rocks. High-angle faulting is common and some faults are associated with the mineral deposits. The Permo-Triassic sedimentary rocks are exposed in a window in a thrust sheet comprised of Cambrian sedimentary rocks (Whelan, 1982). Figure 12a is a reproduction of the geologic map in the Whelan (1982) paper. Figures 12b and 12c are reproductions of a geologic cross section from the same paper. Figures 12d and 12e are a geologic map and cross section prepared by CSM geologic staff. Geologic mapping by CSM shows Permian Kaibab Limestone as the sole country rock in the vicinity of the mineral deposits in the southern Rocky Range. The other Permian formations shown on Whelan's map (Figure 12a) are not distinguished during geologic work by CSM since discriminating the individual units has not been determined to be relevant for mining-related purposes. Therefore, the Kaibab Limestone shown on Figures 12d and 12e may locally include these other units.

Detailed geologic information for the Maria and Niagara Hill Ore bodies can be found in Appendix G, Geological and Metallurgical Information for the Deposits. This information includes geologic cross-sections of the proposed pits and a geologic map of the existing Maria pit.

The OK area is located on the southern end of the Beaver Lake Mountains. This part of the range is comprised of Tertiary volcanic rocks and the granodiorite intrusive that hosts the OK copper deposit. The lower elevations adjacent to the two ranges are underlain by Quaternary alluvium. Faulting of the granodiorite in the southern Beaver Lake Mountains has not been documented in the literature (Lemmon and Morris, 1979). However, an east-west fault associated with mineralization and hydrothermal alteration in the OK copper deposit has been recognized by geologists employed by CSM and its predecessor owners.

The ITDF will be located in two small drainages at the southern edge of the Beaver Lake Mountains. Bedrock exposures surrounding both drainages are comprised of Tertiary granodiorite (Lemmon and Morris, 1979). Weathering of granodiorite to depths

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The waste rock dumps for Bawana, Niagara, Hidden Treasure (Maria) and Sunrise operations will be constructed at a angle of repose ~~slope of 3h:1v so that only very minor regrading will be required during reclamation.~~

The ore deposits in the southern Rocky Range appear, from the location of historic mining activities, to be discontinuous. CSM has found that some of the deposits are more extensive than is apparent from surface exposures. Development and exploration drilling are expected to continue to identify new deposits and/or increased reserves in existing deposits along the northerly strike of the ore occurrences. In addition, some ore zones extend down dip and may be minable in the future by open pit or underground methods. Accordingly, backfilling of the pits with waste rock is generally not practicable, since doing so could prevent access to un-mined deposits. CSM does plan, tentatively, to backfill part of the existing Bawana pit with waste rock produced from the Bawana expansion, as well as waste material from the Niagara Hill Pit if it is confirmed that doing so will not inhibit future mine development. Obviously, ~~neither~~ the Hidden Treasure pit, which is being deepened, ~~nor the Sunrise pit, which is just being opened,~~ can be backfilled. The Sunrise Pit, however, is anticipated to be backfilled within the foreseeable future during expansion to the north. This will be confirmed with further exploration drilling. Other existing disturbances, notably the Maria pit, cannot be sites of waste rock disposal since doing so would prevent future development.

The lives of the proposed pits as currently designed are estimated at between 4-2 and 4.53 years, with possible expansion in the future depending on success in developing new reserves.

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A geologic cross section of the Sunrise mine was created by MDA using the drill hole data from exploration drilling done in 2012. The lithology for the Sunrise was found to be similar to that found in Hidden Treasure: a top layer of overburden/colluviums, followed by weakly-altered monzonite stock and dikes, and finally the moderate to strong skarn-altered rock. In the Sunrise, the skarn-altered rock consists primarily of altered sedimentary units.

Due to the similar lithology found in both the Sunrise and Hidden Treasure, it can be assumed that the highwalls in the proposed Sunrise pit will show similar competency. However, CSM is in the process of developing a program for ongoing geotechnical evaluation of pit slopes in the Sunrise mine and will continue this program with future pit developments. The program will be carried out by licensed geotechnical engineers at IGES, Inc of Salt Lake City. The program will consist of geotechnical and geomechanical mapping, data analysis and modeling, and design recommendations for pit slopes with adequate factors of safety for the various open pit segments. Following the initial observations and slope stability modeling, slope stability monitoring will be ongoing for the active pits throughout mining. If during this period either the phreatic surface or geomechanical properties of the pit wall rocks change, supplemental analysis and modeling, if necessary, will be carried out. Information related to the slope stability of the pits will be provided to DOGM as it is made available and will be included in Appendix L. Upon completion of mining at each pit, a geotechnical report documenting the pit slope conditions and slope stability safety factors will be prepared by a licensed geotechnical engineer. A copy of that report will be provided to the Division within 30 days after completion of the evaluation.

Maria Pit Expansion

A geologic cross section of the Maria orebody was created in house by CSM using drill hole data from exploration drilling done in 2012 and 2015 (Appendix G). The lithology for the Maria was found to be similar to that found in the Hidden Treasure; a top layer of overburden/colluviums, followed by weakly-altered monzonite stock and dikes, and finally the moderate to strong skarn-altered rock. The structural geology of the Maria orebody, however, is similar to the Bawana in that the ore body is controlled by an anticline, with the Maria located on the south flank and the Bawana located on the north flank.

The ~~Maria~~ existing Maria pit has high wall slopes ranging from 50 to 60 degrees and have remained stable since mining there ended in the 1970s. No evidence of slope instability is visible on the pit wall. The expanded pits will have high wall slopes ranging from 50 to 55 degrees. Quartz monzonite country rock will form the high walls and is anticipated to form stable slopes. However, CSM has contracted IGES to perform initial geotechnical evaluations of the rock mechanics along the outer perimeter of the proposed Maria Pit Expansion. This geotechnical evaluation will be performed to evaluate high wall stability and other safety factors. The evaluation will be provided to the Division within 60 days of commencement of construction of the Maria Pit Expansion. Upon completion of mining activities, a follow-up evaluation will also be conducted by IGES, the findings of which will be provided to the Division. Nevertheless, as stated in section 109.4, a geotechnical report of the type described above for the Sunrise pit will be prepared by a licensed geotechnical engineer as described above following completion of mining and submitted to the Division.

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Niagara Hill Pit

A geologic cross section of the Niagara orebody was created in house by CSM using drill hole data from exploration drilling done in 2013 and 2014 (Appendix G). The Niagara orebody consists of two main veins: Niagara and Hidden Treasure. Each vein, as the name implies, has characteristics of the Hidden Treasure and Bawana ore bodies. Surrounding rock is primarily quartz monzonite/diorite.

As described in section 106.2, the Niagara Hill pit will be constructed in phases, with the first phase only encompassing a footprint of approximately 10 acres, with a total pit depth of less than 100 feet, and designed with 45 degree pit slope. This pit will be located along the eastern extent of the large Niagara Pit footprint. Once a final mine design for the large Niagara Hill pit has been finalized, geotechnical evaluations similar to what was described above for the Maria Pit Expansion will be conducted. The geotechnical evaluation will be provided to the Division within 60 days of commencement of construction of the large Niagara Hill Pit. The final Niagara Hill pit will have highwall slope angles of up to 50 to 55 degrees, as has similar to the other open pits within the area. As the pit is developed, geotechnical/geomechanical evaluation of highwall stability will be carried out by IGES, LLC for the purpose of determining the stability of the highwalls and providing recommendations for highwall design as needed. Upon completion of mining activities, a follow-up evaluation will also be conducted by IGES, the findings of which will be provided to the Division. As stated in section 109.4, a geotechnical report of the type described above for the Sunrise pit will be prepared by a licensed geotechnical engineer as described above following completion of mining and submitted to the Division.

Waste Dumps

The Hidden Treasure and Bawana waste dumps are designed to be constructed with 3h:1v slopes. No slope failures have been noted on the dump slopes since CSM commenced mining operations. The Sunrise waste dump will also be designed to have a 3h:1v slope. All waste dumps associated with CSM pit development have been or will be constructed with alternating angle-of-repose slopes and flat terraces. The tops of all dumps will be checked daily for cracks. If any cracks are noted, appropriate safety measures will be taken, including diverting traffic around the crack, and short-dumping.

Tailings Ponds

For the flotation tailings pond, with the 10-foot raise, "all long term static minimum factors of safety calculated are greater than 1.5 and those under design pseudo dynamic conditions are greater than 1.0 (IGES, 2013)." The Division of Water Quality

slowly because they will be finer grained and partially inundated by tailings water. Depending on the season of the year when operations cease, evaporation of standing water and drying of the remaining tailings may require an additional 3 to 6 months of drying time, resulting in a total estimated drying time of 6 to 12 months. Topsoil will be placed as soon as a reasonable surface area has dried sufficiently to safely and efficiently operate trucks and dozers on the surface.

Stockpiled topsoil will be replaced during final reclamation of the individual disturbance areas following completion of mining or related activities in the area. Afterwards, any impacted native soil remaining at the stockpile sites would be ripped to a depth of 24 inches and then seeded by broadcast methods. Topsoil will not be replaced concurrently during operations in the individual disturbance areas.

Road spurs into the pits would be covered with topsoil, if available, ripped and reseeded.

The Bawana low grade stockpile is located at the site of a pre-existing disturbed area that has subsequently been used for ore stockpiling by CSM. The stockpile area is listed in Figure 1 (approximately 7.5 acres in area) (Figures 1 and 11b, Table 1). CSM has not been entirely disturbed; part of this area thus far and may disturb additional area through the course of its ongoing operations. Approximately 30 percent of the area is vegetated and remains disturbed. If this additional area is required for stockpile capacity, the topsoil in the undisturbed area would be salvaged and stored in the nearest existing topsoil stockpile for later distribution. Reclamation of the stockpile area would consist at a minimum of regrading the remaining stockpile material (estimated at 15,000 cubic yards for surety estimating purposes) to an appropriate configuration and reseeded the material directly. If topsoil is salvaged in the future, it has been assumed, again for surety estimating purposes, that the salvaged soil would be distributed over the entire 7.5-acre area at a depth of 3 inches followed by re-seeding. Sufficient topsoil is stockpiled to allow the entire stockpile area to be covered with 1 foot of soil when the stockpile area is no longer in use by CSM. After all stockpiled ore has been removed from the area, the surface of the entire 7.5-acre former stockpile site will be reclaimed. After it is graded, 1 foot of topsoil, recovered from the Hidden Treasure topsoil stockpiles, will be placed on the surface, then it will be ripped to a depth of 2 feet and reseeded with the Division-approved seed mix.

Pits will be backfilled as conditions allow. Any pits left unreclaimed will have closure geotechnical studies performed as described in Section 109.4. Based upon the findings

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of the geotechnical studies, pit high walls will be either left in place, or CSM will perform further closure actions. ~~High walls will be left unreclaimed because of limited access and safety issues.~~ Access to the pits would be discouraged with placement of several large boulders across the reclaimed road spur (See Hidden Treasure Reclamation Map, Figure 10b). Access roads to the dump areas would be fully regraded in the dump reclamation process. Final reclamation would include adding topsoil, ripping to a depth of 24 inches and reseeding. The portions of the County road utilized as the main haul road widened for this project (the existing 28 to 36-foot wide road width would remain unreclaimed and in use) will also be regraded and reclaimed. (unless otherwise requested by Beaver County). The entire haul road is shown on Figure 1; it has a total length of approximately 5.2 miles.

Disturbed areas that were present prior to CSM's and its predecessor's activities in the areas that are located north of the Hidden Treasure haul road in the vicinity of the BawanaMaria and Hidden Treasure mines will be reclaimed. These areas are located adjacent to the old Bawana and Montreal-Maria dumps and the Hidden Treasure dumps and pit. Exploration and condemnation drilling that is likely to be conducted in these areas in the future may identify areas for open pit development or waste rock placement. The exact acreage to be reclaimed will be determined following completion of mining in the area; however, the areas currently identified as "Previous Disturbance" in the vicinity of the Hidden Treasure and BawanaMaria pits (Figure 1) is included in this reclamation plan and surety will be put in place for the areas as they exist now. Reclamation will only occur on areas that have not naturally revegetated over time, and will consist of grading the areas, placement of 1 foot of topsoil from one of the nearby topsoil stockpiles on the surfaces, ripping the topsoiled surface to a depth of 2 feet and reseeding with the Division-approved seed mix.

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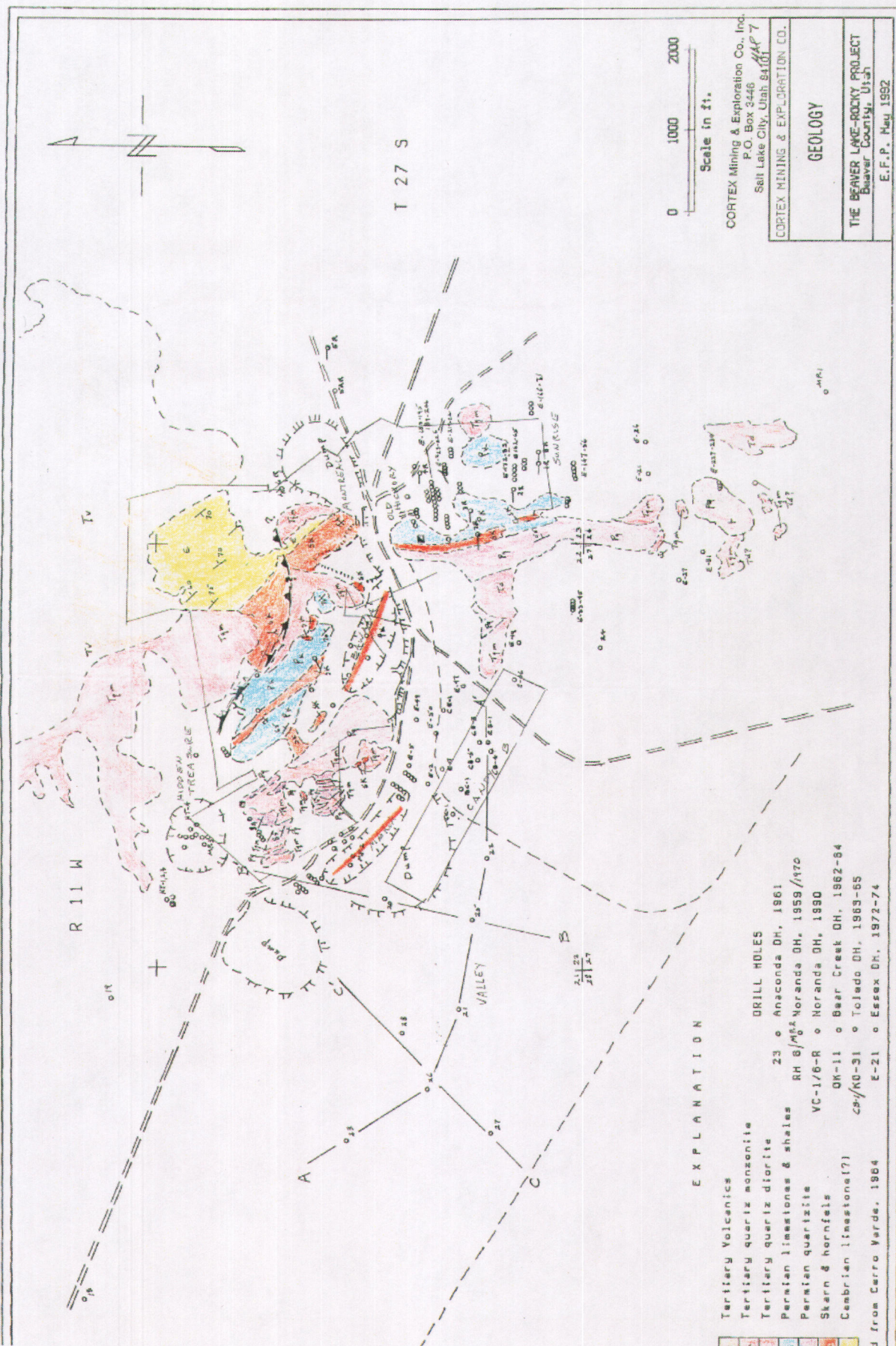
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Appendix G:
Supplemental Data

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GEOLOGY MAP OF ROCKY RANGE



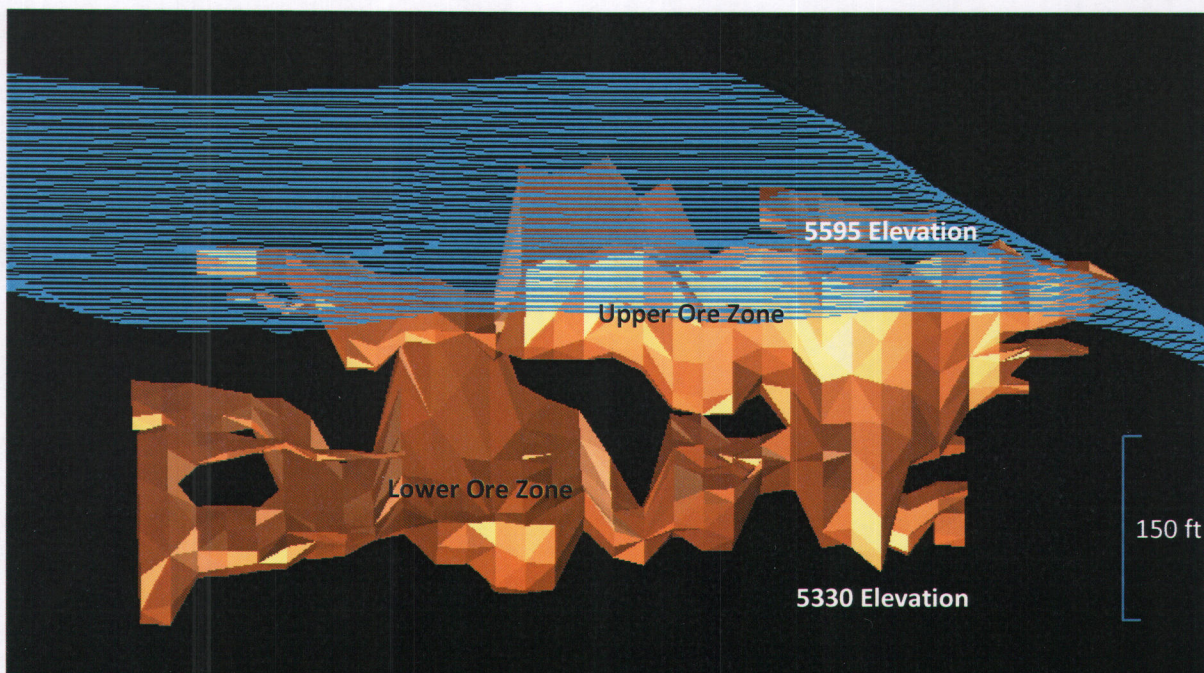
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Niagara ore zone from above

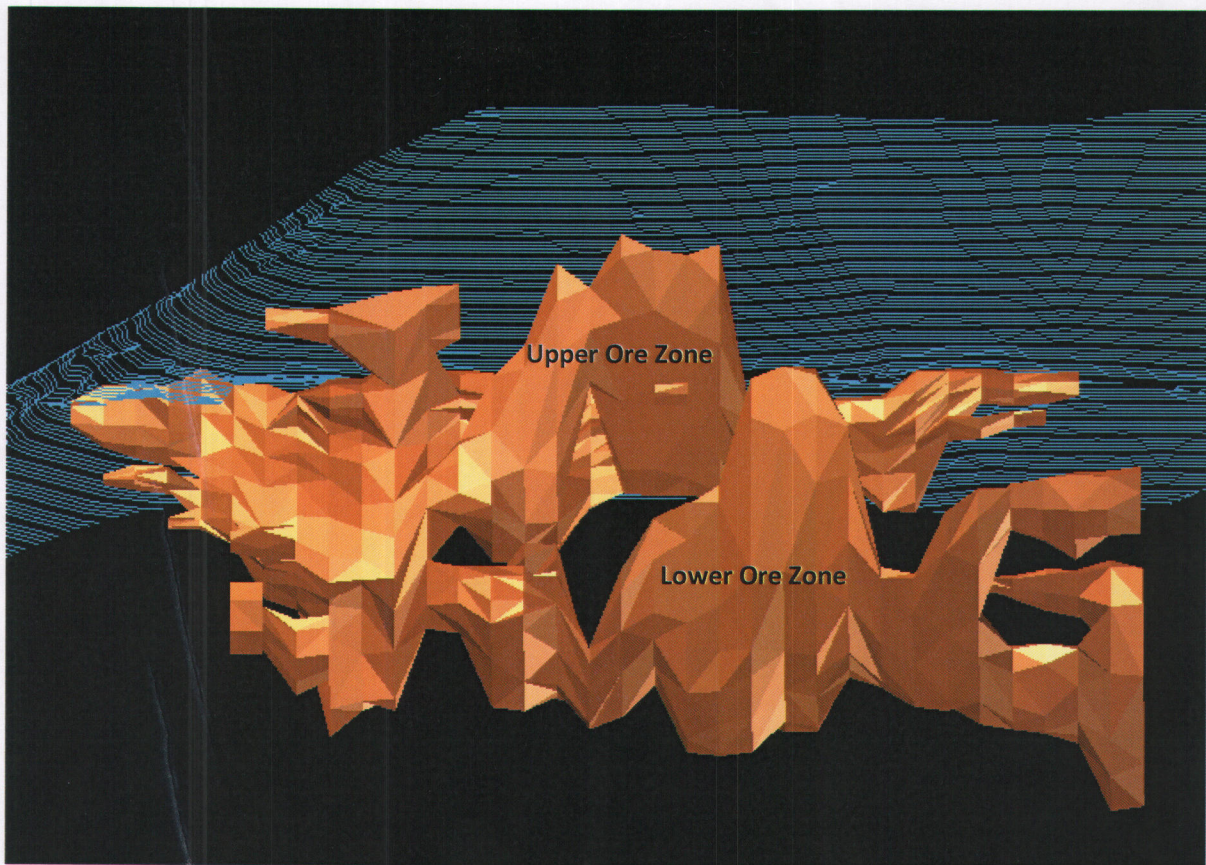


Niagara ore zone looking north

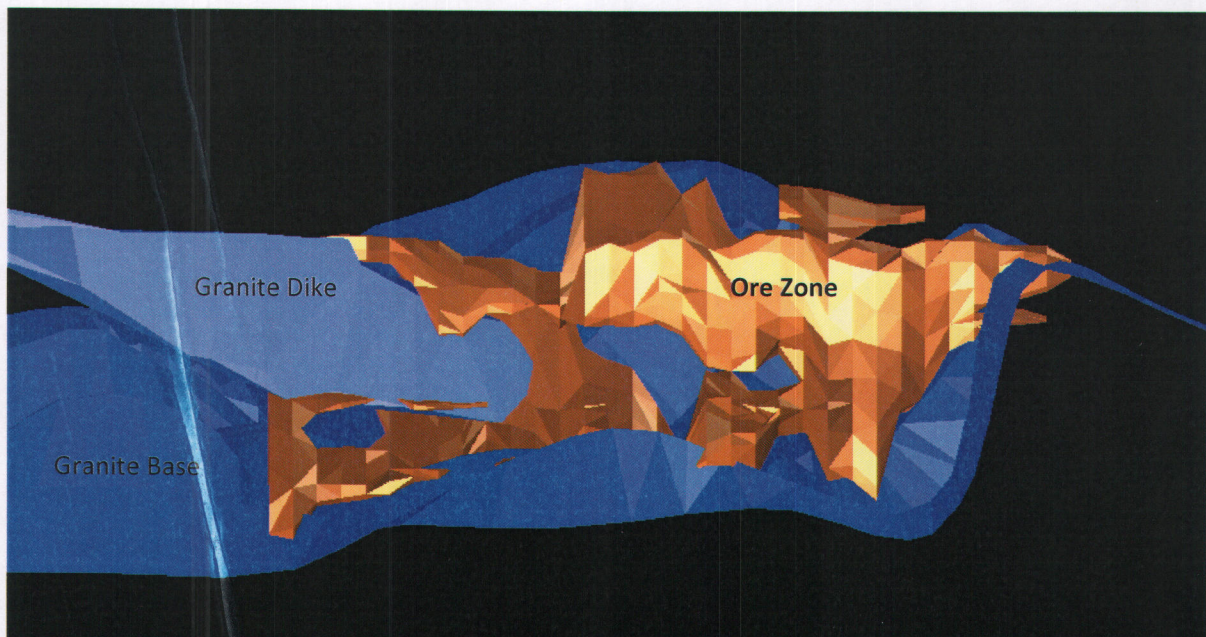
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Niagara ore zone looking south

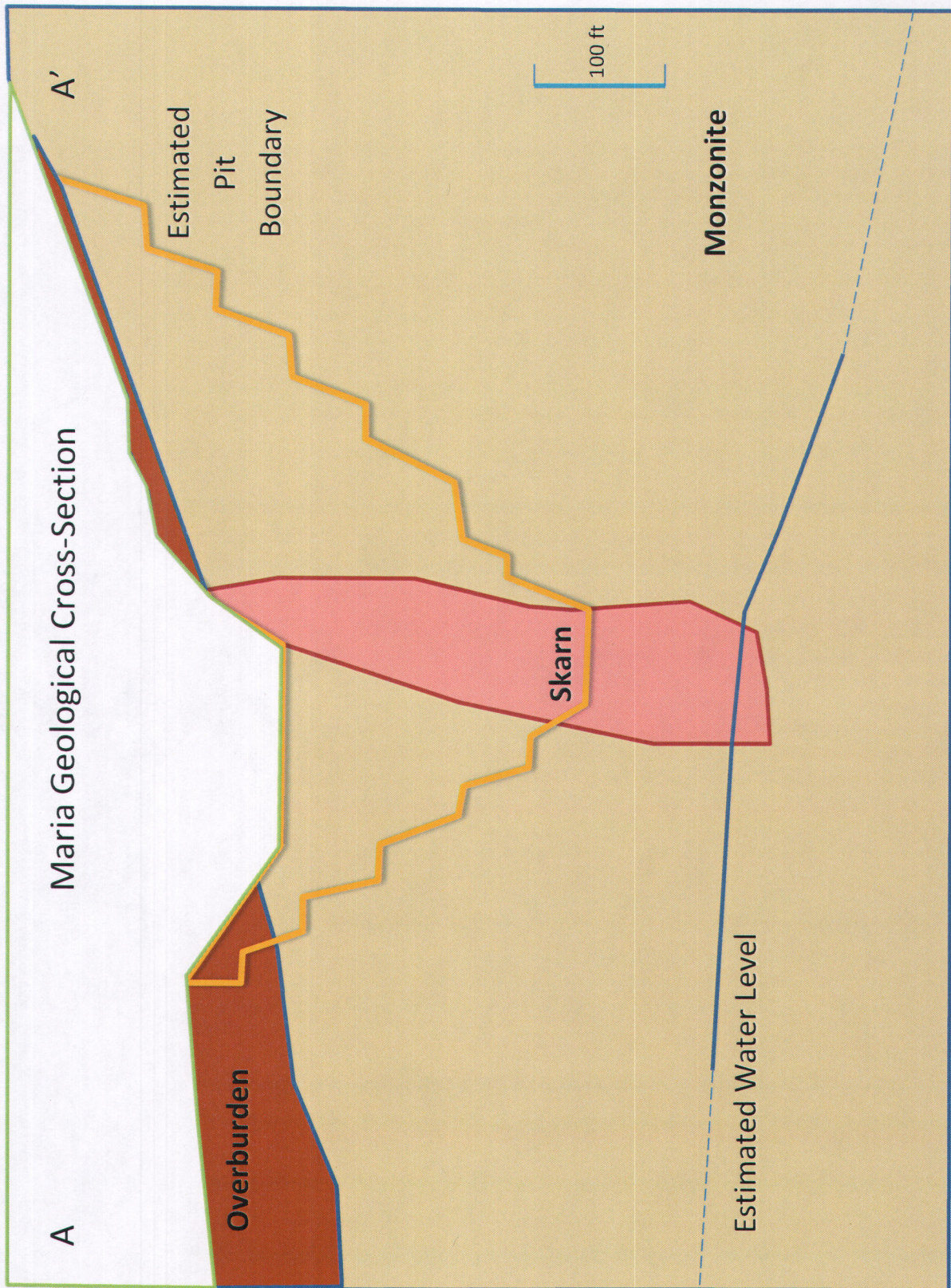


Niagara ore zone (gold color) and Granite (blue color). Looking north.

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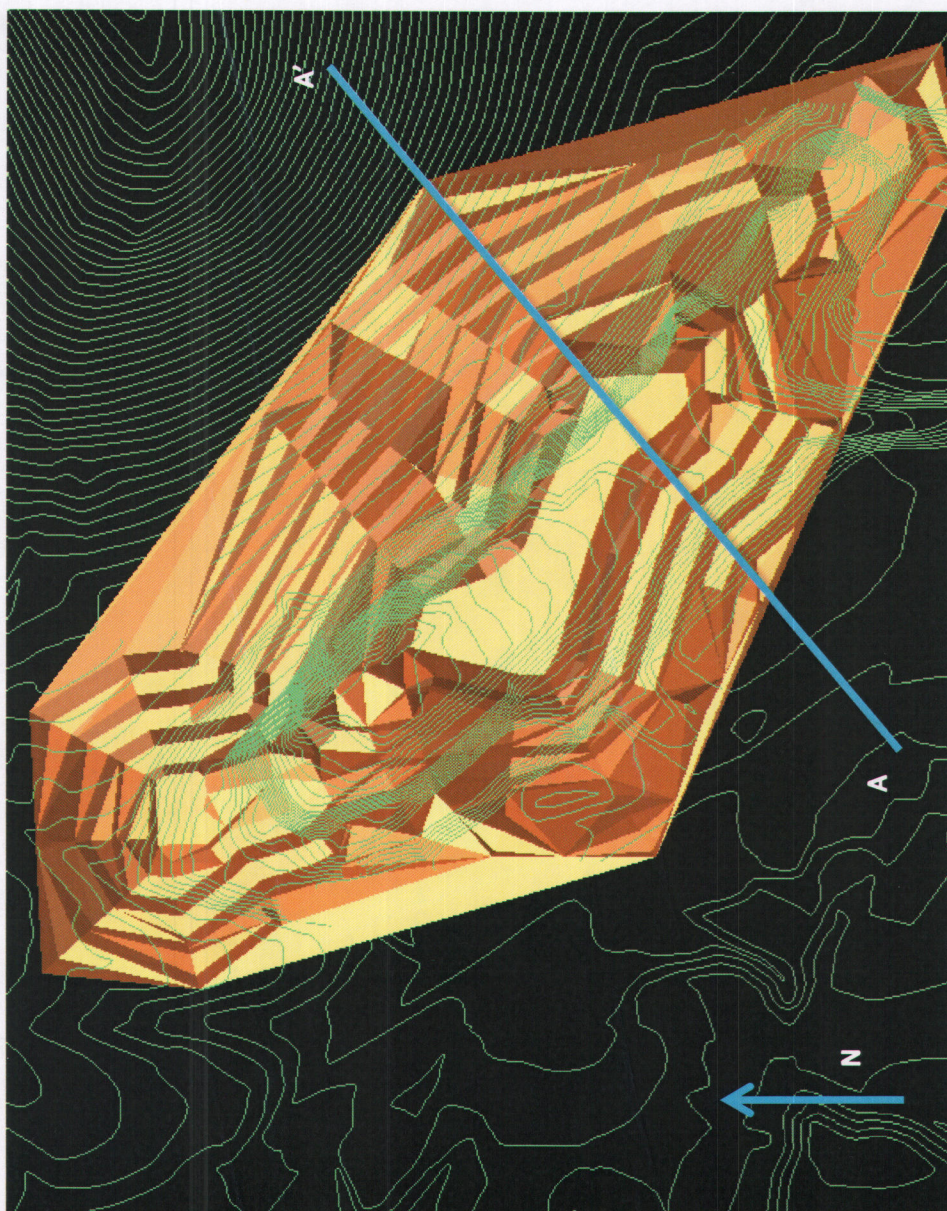
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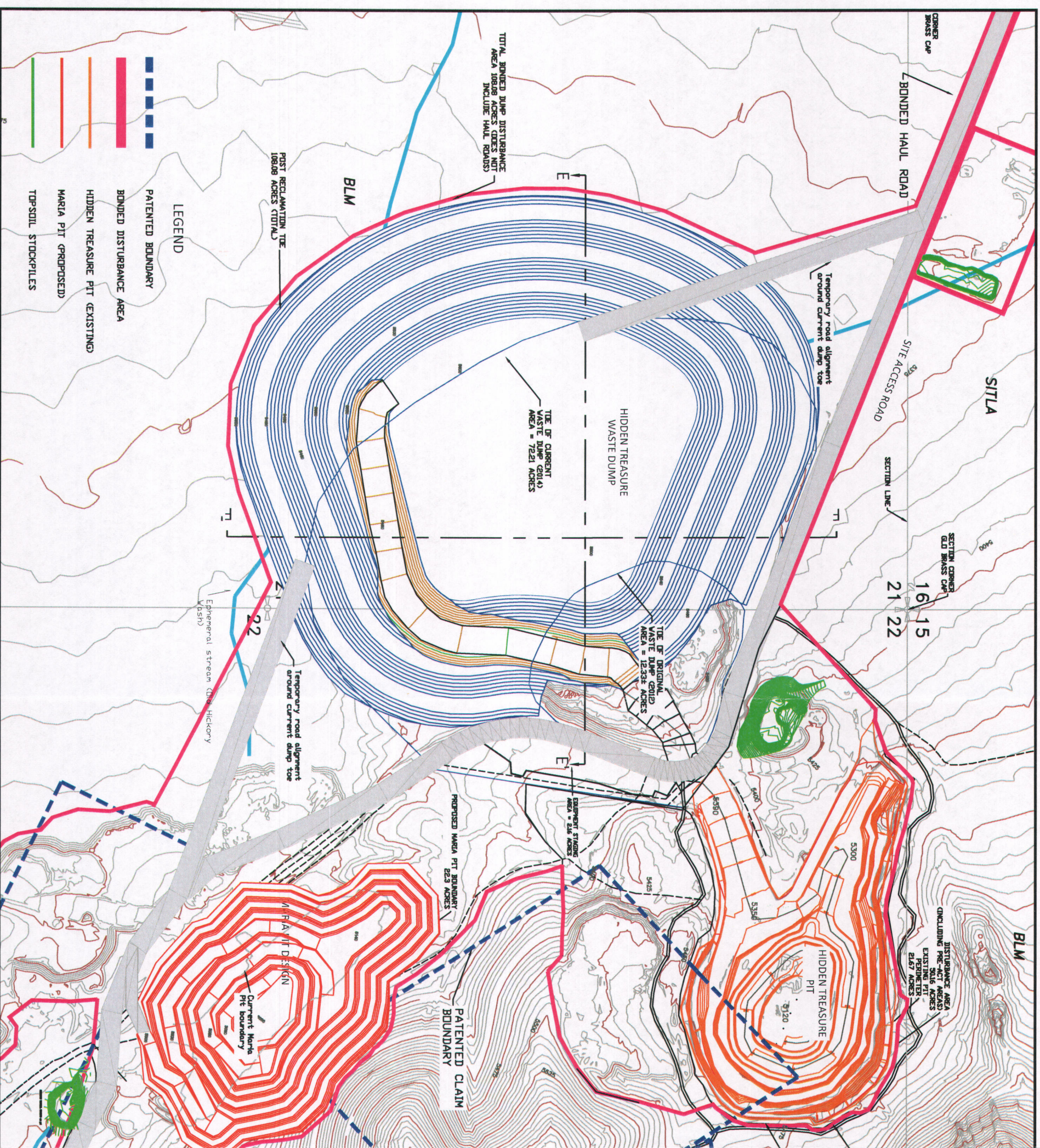
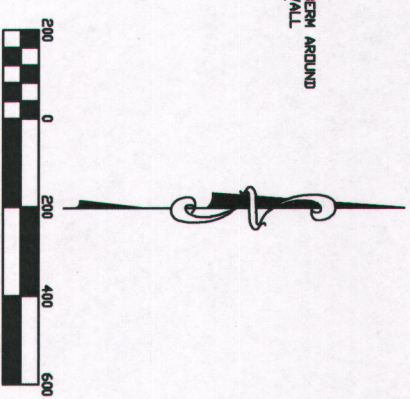
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Revegetation will include ground preparation (re-contouring SITLA or transfer station) and topsoil placement, followed by seed placement. Areas exempt from topsoil placement include the footprint of the topsoil stockpiles and pit access roads.

FIGURE 10a

HIDDEN TREASURE & MARIA PIT
OPERATIONAL MAP - ROCKY MINING DISTRICT
WITHIN SECTIONS 21,22, T 27 S, R 11 W, SLB&M, BEAVER COUNTY, UT

OWNER:
C.S. MINING, LLC.
P.O. Box 608
Milford, Utah 84751

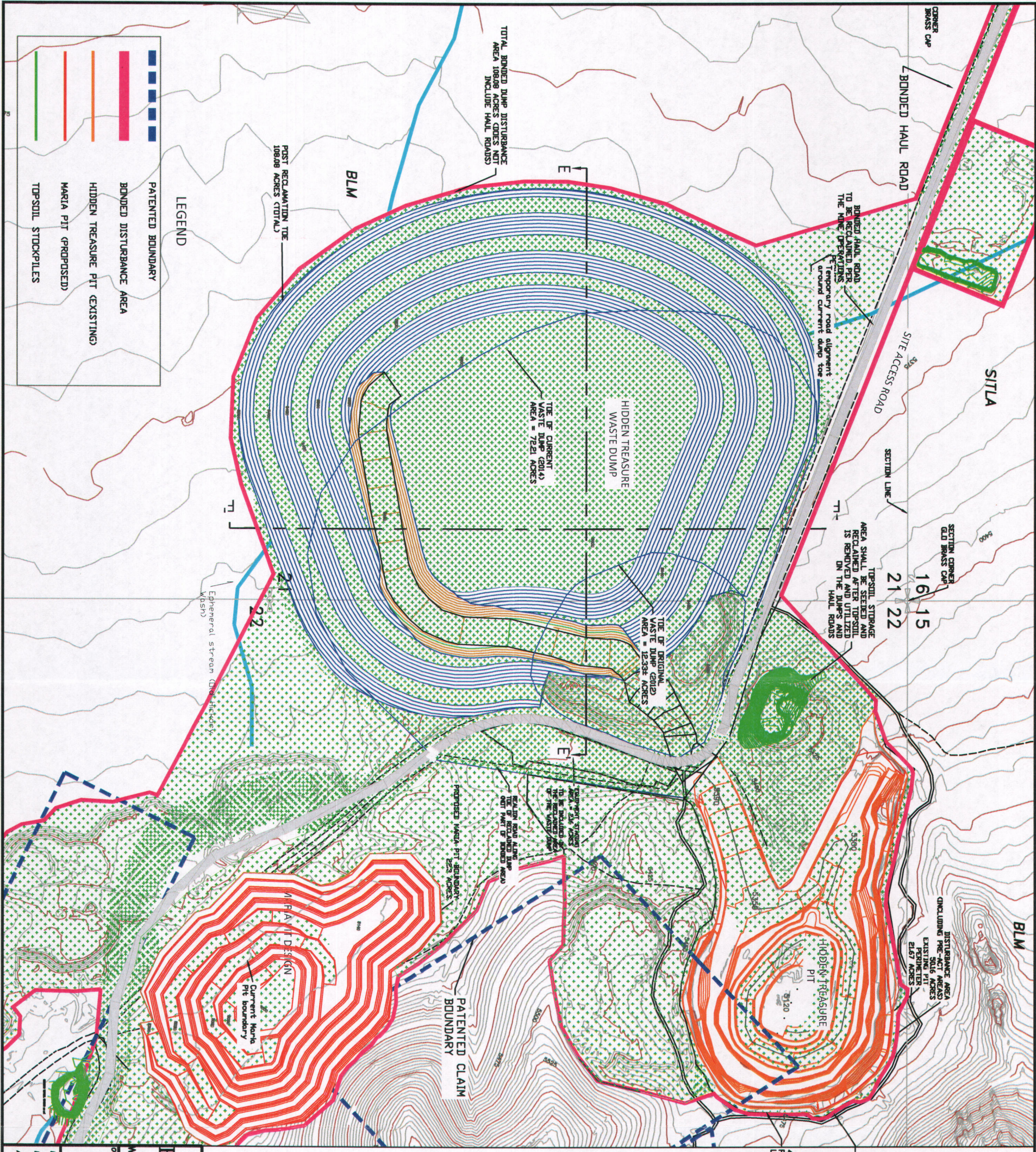
DATE	DESCRIPTION	NO. REVISIONS	SHEET
March 12, 2015	NO REVISIONS	1	10a
APPROVED:	CURULE		

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BONDED DISTURBANCE AREA

4' TALL SAFETY BERM AROUND
PERIMETER HIGH WALL
LENGTH = 5000 LF



Revegetation will include ground preparation (re-contouring SITLA ore transfer station) and topsoil placement, followed by seed placement. Areas exempt from topsoil placement include the footprint of the topsoil stockpiles and pit access roads.

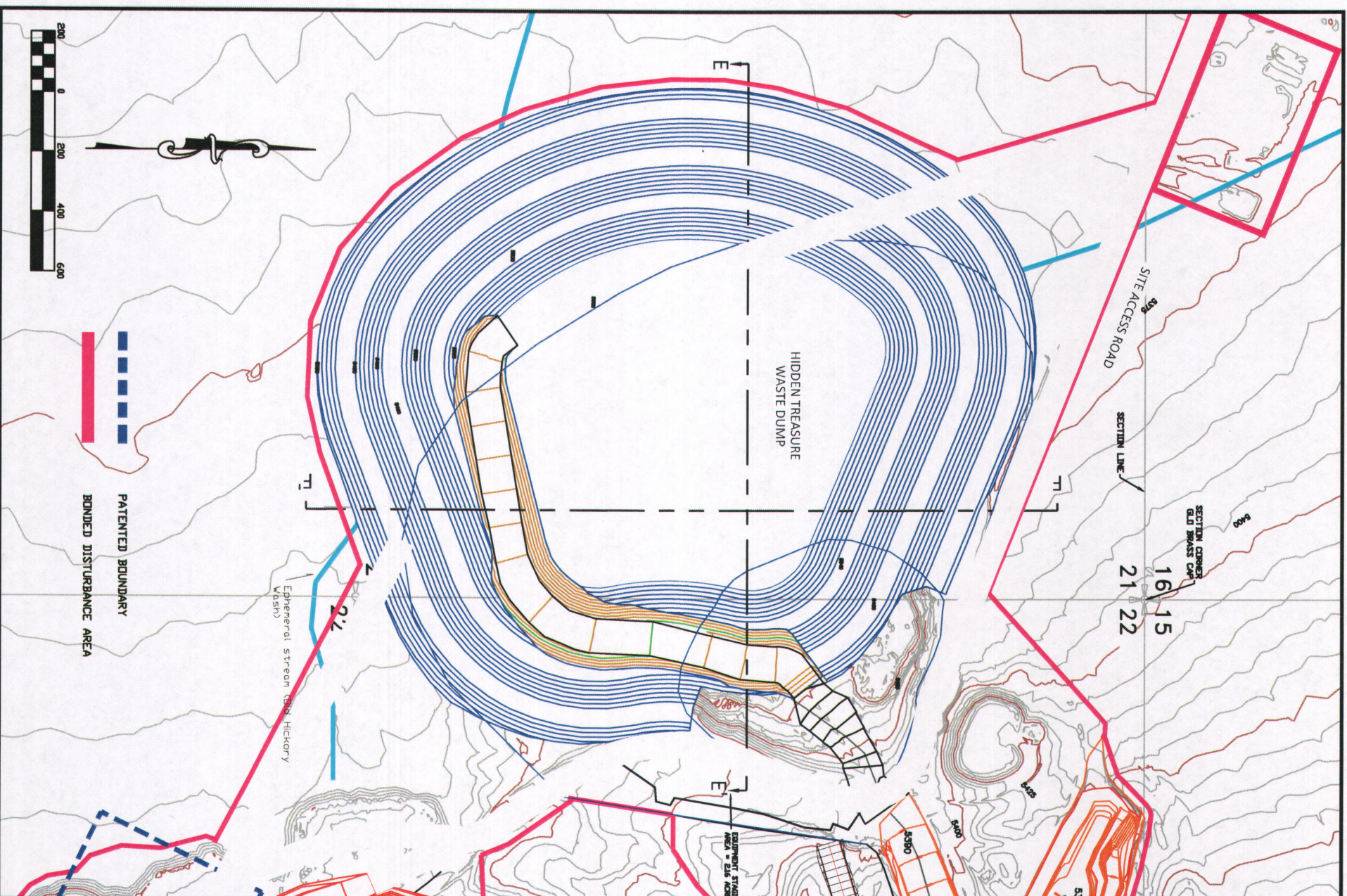
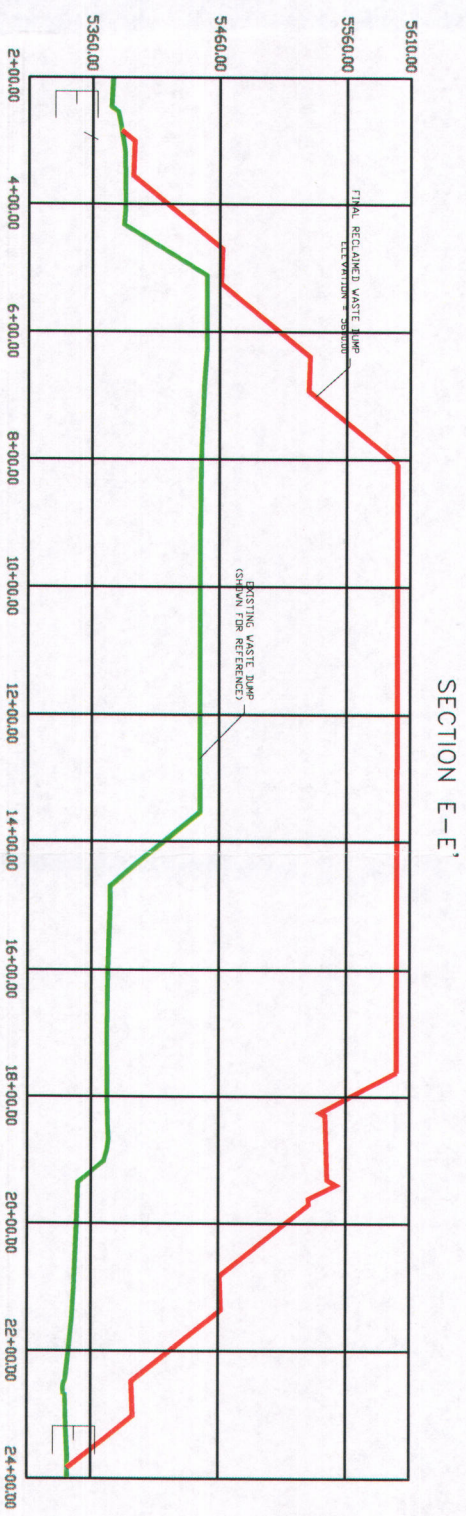
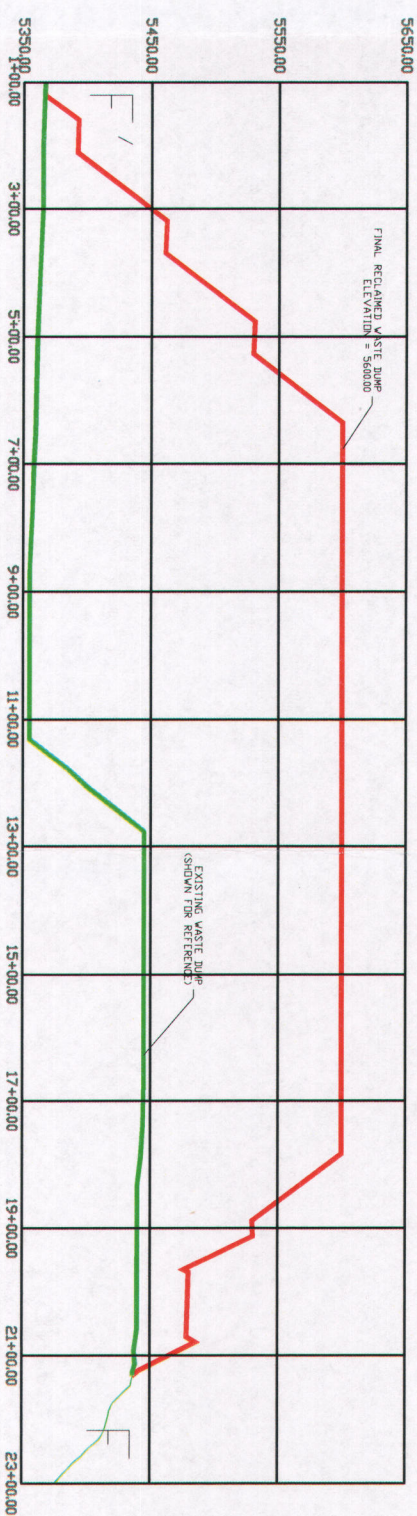
FIGURE 10b
HIDDEN TREASURE & MARIA PIT
POST MINE RECLAMATION MAP
WITHIN SECTIONS 21,22, T 27 S, R 11 W, SLB&M, BEAVER COUNTY, UT

OWNER:
C.S. MINING, LLC.
P.O. Box 608
Mifflord, Utah 84751

DRAWN		REVISIONS		SHEET
DATE:	AS:	DATE:	DESCRIPTION	
March 12, 2015			NO REVISIONS	
APPROVED:			NO REVISIONS	

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All dumps will be designed with alternating angle-of-repose slopes and flat terraces. For detailed information on dump designs, please refer to the NDI text.

OWNER		ENGINEER	
C.S. MINING, LLC. P.O. Box 608 Milford, Utah 84751		PLATT & PLATT, INC. CIVIL ENGINEERS & SURVEYORS 195 N. 100 E., CEDAR CITY, UTAH 84720	
DRAWN D. GARDNER DATE DEC. 8, 2011		CHECKED DATE DEC. 8, 2011	
REVISIONS		REVISIONS	
DATE 11-15-11		DATE DEC. 8, 2011	
BY CUTLER		BY CUTLER	
SHEET 10C		SHEET 10C	